Tioga
ENVIRONMENTAL
CONSULTANTS

September 15, 2017

Mr. Anthony Krone
Risk Manager
Shelby County Schools
160 South Hollywood – Room 152
Memphis, Tennessee 38112

RE: Lead in Drinking Water Sampling
Oakhaven Middle/High School
3125 Ladbrook
Memphis, Tennessee
Tioga Project No.: 24816.00

Dear Mr. Krone,

At the request of Shelby County Schools (the Client), Tioga Environmental Consultants (Tioga) performed sampling of drinking water sources at the above referenced school for laboratory analysis of total lead concentrations. At the request of the Client, sampling was conducted on potable water sources in the kitchen and water fountains throughout the first and second floors of the school. Sampling was conducted early in the morning, before any potable water sources had been used for the day and prior to the arrival of any students or faculty.

On August 24, 2017, Tioga representative Margaret Strom arrived onsite and was escorted through the building by Shelby County Schools risk management personnel. First-draw potable water samples were collected in accordance with the Environmental Protection Agency (EPA) regulations codified in 40 CFR 141.86, and were documented and transferred under chain-of-custody protocol to Waypoint Analytical Laboratories in Memphis, Tennessee for analysis of total lead content.

Results Based on Laboratory Analysis:
Table 1 on the following page summarizes the sampling locations, laboratory analytical results, and EPA action level for lead in drinking water. Sample results with a "<" symbol did not contain lead content above the laboratory detection limit. Samples highlighted in yellow exceeded the EPA action level for lead.

357 North Main Street, Memphis, TN 38103 | Phone: 901.791.2432 | Fax: 901.791.2442 | tiogaenv.com

Table 1
Summary of Analytical Results
Oakhaven Middle/High School
August 24, 2017

Sample ID	Sample Location	Total Lead (µg/L)	EPA Action Level (µg/L)
31-1	Water Fountain - Cafeteria High School	<0.513	15
31-2	Water Fountain across from Room 120A High School	3.07	
31-3	Water Fountain near Room 217 High School	15.4	
31-4	Water Fountain across from Room 210 High School	1.94	
31-5	Water Fountain across from Room 108 High School	1.38	
31-6	Water Fountain at Girls Restroom at Top of Stairs - Middle School	3.74	
31-7	Water Fountain across from Room 224 Middle School	1.42	

(µg/L) = Micrograms of lead per liter of water (parts per billion)

A review of the laboratory analytical results of the water samples collected revealed 1 sample with total lead concentrations above the EPA action level for drinking water. This sample was collected from the water fountain near Room 217 in the High School.

Recommendations:

Based upon the laboratory analytical results of the seven potable water samples collected from Oakhaven Middle/High School, Tioga recommends that the water fountain above the EPA action level be removed from service immediately. Due to the potential for lead solder and/or other lead-containing components in certain water fountain installations, Tioga recommends that all water fountains of similar style to the impacted water fountains also be removed from service pending further investigation. Due to elevated lead levels being discovered in water fountains at this site, Tioga recommends additional testing of all potable water sources at the site to determine all potential potable water sources with elevated lead levels.

Limitations

Potable water sources with elevated lead levels may potentially be present in areas of the property that are not addressed with this report. This investigation only included the potable water sources specifically addressed.

We appreciate the opportunity to provide you with this service. Should you have any questions regarding this report, please contact me at (901) 791-2432.

Sincerely,
TIOGA ENVIRONMENTAL CONSULTANTS, INC.

Eric Davis, CIE
Environmental Scientist

Enclosure: (1) Laboratory Analytical Report

Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ° Fax 901.213.2440
www.waypointanalytical.com

8/30/2017

Tioga Environmental Consultants
Mr. Luke Hall
357 North Main Street
Memphis, TN, 38103

Ref: Analytical Testing
Lab Report Number: 17-236-0322
Client Project Description: Site #31
Project # 24816.00

Dear Mr. Luke Hall:
Waypoint Analytical, Inc. received sample(s) on 8/24/2017 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters (NELAP and non-NELAP) were performed in accordance with guidelines established by the USEPA (including 40 CFR 136 Method Update Rule May 2012) and NELAC unless otherwise indicated. Any parameter for which the laboratory is not officially NELAP accredited is indicated by a '~' symbol. These are not included in the scope because NELAP accreditation is either not available or has not been applied for. Additional certifications may be held/are available for parameters, where NELAP accreditation is not required or applicable. A full list of certifications is available upon request.

Certain parameters (chlorine, pH, dissolved oxygen, sulfite...) are required to be analyzed within 15 minutes of sampling. Usually, but not always, any field parameter analyzed at the laboratory is outside of this holding time. Refer to sample analysis time for confirmation of holding time compliance.

The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Randall H. Thomas

Randy Thomas
Project Manager

Laboratory's liability in any claim relating to analyses performed shall be limited to, at laboratory's option, repeating the analysis in question at laboratory's expense, or the refund of the charges paid for performance of said analysis.

Alabama	#40750	Louisiana	#04015	VA NELAP	#460181	Texas	#T104704180-11-6	Arkansas	#88-0650
Mississippi		California	#2904	NC	#415	Oklahoma	#9311	Virginia	#00106
Kentucky	#90047	Tennessee	#TN02027	EPA	#TN00012	Kentucky UST	#41		

Waypoint ANALYTICAL

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06510
Tioga Environmental Consultants
Mr. Luke Hall
357 North Main Street
Memphis , TN 38103

Project Information : Site #31
Project # 24816.00

Report Date : 8/30/2017

Report Number : **17-236-0322**

REPORT OF ANALYSIS

Received : 8/24/2017

Lab No : **97764** Matrix: **Aqueous**
Sample ID : **31-1** Sampled: **8/24/2017 5:05**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Total Lead	<0.513	µg/L	0.513	1	08/29/17 22:40	BKN	EPA-200.8

Lab No : **97765** Matrix: **Aqueous**
Sample ID : **31-2** Sampled: **8/24/2017 5:08**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Total Lead	**3.07**	µg/L	0.513	1	08/29/17 22:45	BKN	EPA-200.8

Lab No : **97766** Matrix: **Aqueous**
Sample ID : **31-3** Sampled: **8/24/2017 5:10**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Total Lead	**15.4**	µg/L	0.513	1	08/29/17 22:50	BKN	EPA-200.8

Lab No : **97767** Matrix: **Aqueous**
Sample ID : **31-4** Sampled: **8/24/2017 5:14**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Total Lead	**1.94**	µg/L	0.513	1	08/29/17 22:54	BKN	EPA-200.8

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

Waypoint ANALYTICAL

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06510
Tioga Environmental Consultants
Mr. Luke Hall
357 North Main Street
Memphis , TN 38103

Project Information : Site #31
Project # 24816.00

Report Date : 8/30/2017

Report Number : **17-236-0322**

REPORT OF ANALYSIS

Received : 8/24/2017

Lab No : **97768**
Sample ID : **31-5**
Matrix: **Aqueous**
Sampled: **8/24/2017 5:16**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Total Lead	**1.38**	µg/L	0.513	1	08/29/17 23:06	BKN	EPA-200.8

Lab No : **97769**
Sample ID : **31-6**
Matrix: **Aqueous**
Sampled: **8/24/2017 5:27**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Total Lead	**3.74**	µg/L	0.513	1	08/29/17 23:11	BKN	EPA-200.8

Lab No : **97770**
Sample ID : **31-7**
Matrix: **Aqueous**
Sampled: **8/24/2017 5:30**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Total Lead	**1.42**	µg/L	0.513	1	08/29/17 23:16	BKN	EPA-200.8

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ° Fax 901.213.2440
www.waypointanalytical.com

Cooler Receipt Form

Customer Number: **06510**
Customer Name: **Tioga Environmental Consultants**
Report Number: **17-236-0322**

Shipping Method

○ Fed Ex	○ US Postal	○ Lab	○ Other :	
○ UPS	● Client	○ Courier	Thermometer ID:	N/A

Shipping container/cooler uncompromised?	● Yes	○ No	
Number of coolers received	1		
Custody seals intact on shipping container/cooler?	○ Yes	○ No	● Not Required
Custody seals intact on sample bottles?	○ Yes	○ No	● Not Required
Chain of Custody (COC) present?	● Yes	○ No	
COC agrees with sample label(s)?	● Yes	○ No	
COC properly completed	● Yes	○ No	
Samples in proper containers?	● Yes	○ No	
Sample containers intact?	● Yes	○ No	
Sufficient sample volume for indicated test(s)?	● Yes	○ No	
All samples received within holding time?	● Yes	○ No	
Cooler temperature in compliance?	● Yes	○ No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	○ Yes	● No	
Water - Sample containers properly preserved	● Yes	○ No	○ N/A
Water - VOA vials free of headspace	○ Yes	○ No	● N/A
Trip Blanks received with VOAs	○ Yes	○ No	● N/A
Soil VOA method 5035 – compliance criteria met	○ Yes	○ No	● N/A

☐ High concentration container (48 hr)
☐ Low concentration EnCore samplers (48 hr)
☐ High concentration pre-weighed (methanol -14 d)
☐ Low conc pre-weighed vials (Sod Bis -14 d)

Special precautions or instructions included?	○ Yes	● No

Comments:

Signature: Tory Phillips Date & Time: 08/24/2017 16:58:37

Waypoint ANALYTICAL

17-236-0322
06510
08-24-2017
16:57:29
Tioga Environmental Consultants
Site #31

Kit ID:	0000085147
Initiated By:	Andy Parrish
Project Comment	

CHAIN-OF-CUSTODY

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Tioga Environmental Consultants	06510	Mr. Luke Hall	
Site Name: 31	**Project Number**: 24816.00	☐ RUSH – Additional charges apply ☐ Special Detection Limits(s) Date Results Needed	**Method of Shipment** ☐ Fed Ex ☐ UPS ☐ USPS ☐ Courier ☐ Client Drop Off Other
LIMS Project ID	**Project Manager Phone #**: (901) 791-2432	**Project Manager Email**: lhall@tiogaenv.com	**Site/Facility ID #**: 31

Date	Time	Sample ID	Matrix	Grab/ Comp	# of Cont	Container Type	Preservation	Analyses
8/24/17	5:05	31-1	Aqueous	G	1	Plastic - Pint	NONE	Total Lead/DW
	5:08	31-2	Aqueous		1	Plastic - Pint	NONE	Total Lead/DW
	5:10	31-3	Aqueous		1	Plastic - Pint	NONE	Total Lead/DW
	5:14	31-4	Aqueous		1	Plastic - Pint	NONE	Total Lead/DW
	5:16	31-5	Aqueous		1	Plastic - Pint	NONE	Total Lead/DW
	5:27	31-6	Aqueous		1	Plastic - Pint	NONE	Total Lead/DW
	5:30	31-7	Aqueous		1	Plastic - Pint	NONE	Total Lead/DW

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments			
Ice Y/N: Y/~~N~~	Custody Seals Y/N: ~~Y~~/N	Lab Comments	Margaret Strom				
Blank/Cooler Temp: N/A			Relinquished by: (SIGNATURE) Margaret Strom	Date Time: 8/24/17 1685	Received by: (SIGNATURE)	Date Time	
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE) J. Smith	Date Time: 8.24.17 1605	

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